DEPARTMENT OF THE ARMY
SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS
ROOM 9M15, 60 FORSYTH ST., S.W.
ATLANTA, GEORGIA 30303-8801

REPLY TO
ATTENTION OF

26 MAR

CESAD-ET-PR/CO-R (1105-2-10b)

MEMORANDUM FOR CDR, HQUSACE, ATTN: CECW-P/O, WASH DC 20314-1000

SUBJECT: Dredged Material Management Plan, Preliminary Assessment for Ponce DeLeon Inlet, Volusia County, FL

1. References:

a. Memorandum, CECW-A, 19 August 1994, subject: Implementation of Guidance on Dredged Material Management Plans (EC 1165-2-200, Advance Copy dated 21 July 1994).

b. EC 1165-2-200 Policy National Harbors Program: Dredged Material Management Plans, 21 July 1994.

2. As requested by reference 1.a., enclosed is the approved Preliminary Assessment for Ponce DeLeon Inlet. We have determined that continued maintenance of the project is warranted and sufficient disposal capacity is available for the next 20 years. Therefore, a Dredged Material Management Plan Study will not be conducted.

3. Our points of contact are Gary Mauldin, CESAD-ET-PR, (404) 562-5232 and Bert Holler, CESAD-ET-CO-R, (404) 562-5113.

FOR THE COMMANDER:

Encl

CARL R. POSTLEWATE
Director of Engineering
and Technical Services

CF (w/encl):
CDR, JACKSONVILLE DISTRICT, ATTN: CESAJ-PD-PN/CO-O

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

CESAJ-PD-PN

25 January 1999

MEMORANDUM FOR Commander, South Atlantic Division,
ATTN: CESAD-ET-PR (Gary Mauldin)

SUBJECT: Ponce DeLeon Inlet, Florida, Dredged Material Management Plan - Preliminary Assessment

1. Two copies of subject report are enclosed for your review and comment. The recommendation for the report indicates continued maintenance is warranted and no additional dredged material management plan is necessary beyond this assessment.

2. Any questions may be referred to me at 904-232-2238. The District point of contact for the subject study is Dick Powell at 904-232-1694.

FOR THE COMMANDER:

James C. Duck

JAMES C. DUCK
Chief, Planning Division

Encls

PRELIMINARY ASSESSMENT

PONCE DELEON INLET, FLORIDA

NATIONAL HARBORS PROGRAM:
DREDGED MATERIAL MANAGEMENT PLANS

January 1999
(Revised 3-17-99)

PRELIMINARY ASSESSMENT

PONCE DELEON INLET, FLORIDA

NATIONAL HARBORS PROGRAM:
DREDGED MATERIAL MANAGEMENT PLANS

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PONCE DELEON INLET, FLORIDA

NATIONAL HARBORS PROGRAM:
DREDGED MATERIAL MANAGEMENT PLANS

1. Project Name and Description

1a. Name: Ponce DeLeon Inlet, Florida

1b. CWIS #: 14310

1c. Project Description:

The Federal navigation project for Ponce DeLeon Inlet is in Volusia County on the East Coast of Florida, about 65 miles south of St. Augustine Harbor, 10 miles south of the City of Daytona Beach, and 57 miles north of Canaveral Harbor. The inlet is a natural harbor connecting the Atlantic Ocean with the Halifax River and the Indian River North. According to historical accounts, the inlet has been in use for navigation more than 200 years. In 1882, Congress provided for construction of a lighthouse that now exists on the north shore of the inlet. There is a U. S. Coast Guard Lifeboat Station on the east shore of the Indian River about 0.7 of a mile south of the inlet.

Ponce DeLeon Inlet provides access to the Atlantic Ocean for commercial and recreational boaters. Fishing parties, shrimp, and commercial fishermen bound for New Smyrna Beach or Daytona Beach use the inlet as well as others entering for an anchorage. Nearby fisheries enhanced by an artificial reef program attract both commercial and sport fishermen. Head boat operators also provide trips to view marine life and space shuttle launches from Cape Canaveral.

The existing navigation project was authorized in the Rivers and Harbors Act of October 1965. That project, figure 1, consists of an entrance channel which provides access to a northwesterly channel along the Halifax River and a southeasterly channel along the Indian River. Both inner harbor channels connect with the Intracoastal Waterway. The authorized project includes:

Segment 1 - An entrance channel 15 feet deep by 200 feet wide across the ocean bar;

Segment 2 - A channel 12 feet deep by 200 feet wide in the inlet;

Segment 3 - A channel 12 feet deep by 100 feet wide inside the inlet and southward in the Indian River to the Intracoastal Waterway;

Segment 4 - A channel 7 feet deep by 100 feet wide northward in the Halifax River;

Segment 5 - Ocean jetties about 4,200 feet long and about 2,700 feet long on the north and south sides, respectively; and

Segment 6 - A weir in the north jetty with an impoundment basin just to the south for accumulating littoral drift material for transport across the inlet to the south by use of a conventional pipeline dredge.[1]

1d. Project as Currently Maintained:

The Federal project, figure 1, exists as authorized except for portions of segments 1, 2, 5, and 6. In the preparation of the General and Detailed Design Memorandum (GDDM-November 1967) the field work for soundings, probings, and core borings showed significant change from the condition surveys done prior to project authorization in 1965.

The subsequent plan, figure 2, for construction of the project was somewhat different from the authorization. The latter field work indicated different design conditions were necessary for the project prior to preparing plans and specifications and showed that the channel and jetties needed to be realigned. The south jetty, segment 5, was moved northward and extended to a distance of about 4,444 feet instead of the 2,700 feet in the authorizing document. [2]

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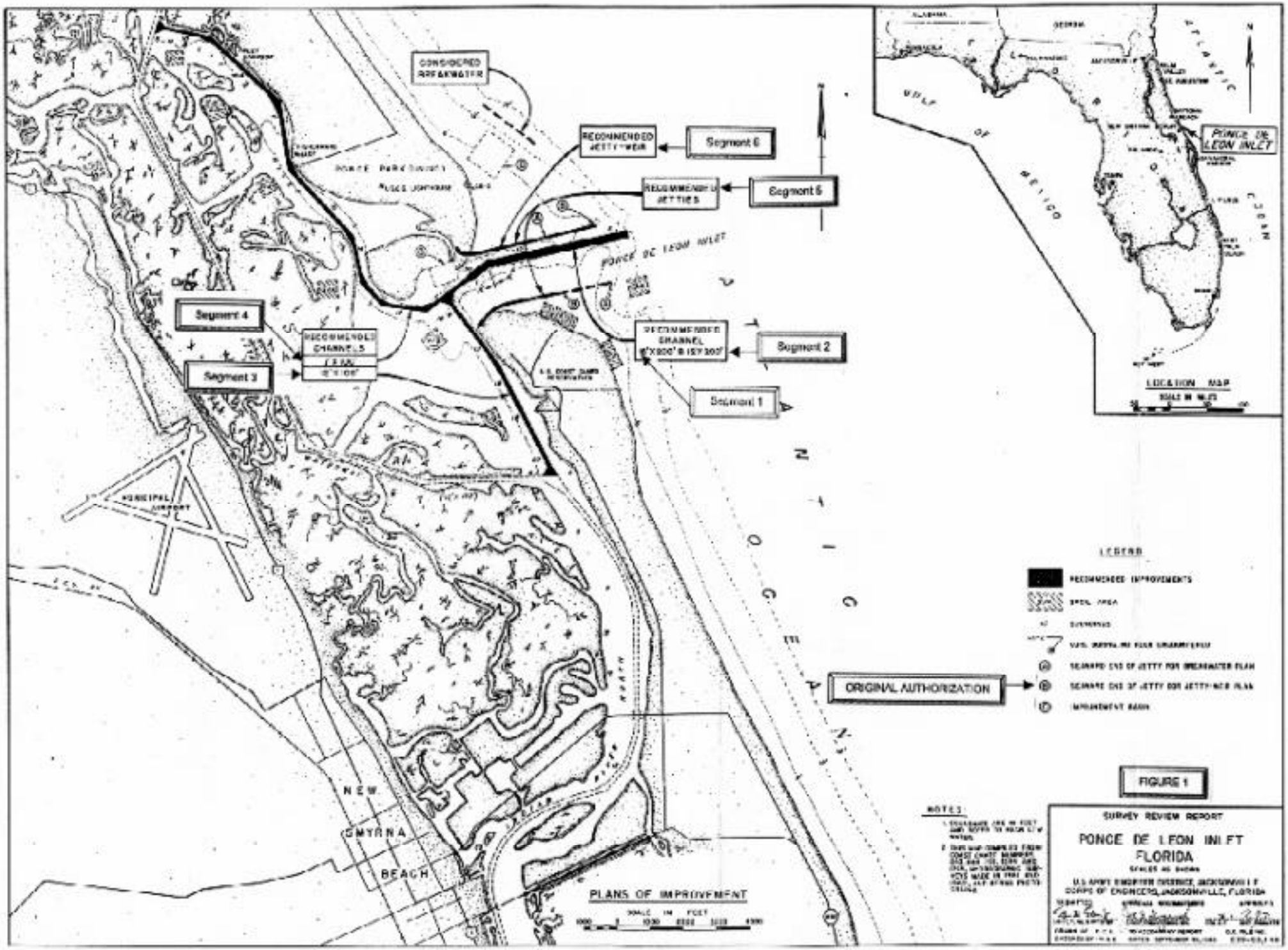
[1] House Document No. 74, 89th Congress, 1st Session, Ponce DeLeon Inlet, Florida, February 4, 1965.

[2] General and Detail Design Memorandum, Ponce DeLeon Inlet, Florida, Department of the Army, Jacksonville District, Corps of Engineers, Jacksonville, Florida, 29 November 1967, P.15.


CONSIDERED BREAKWATER
RECOMMENDED JETTY-WEIR
Segment 6
RECOMMENDED JETTIES
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PONCE DE LEON INLET
Segment 4
Segment 3
RECOMMENDED CHANNEL
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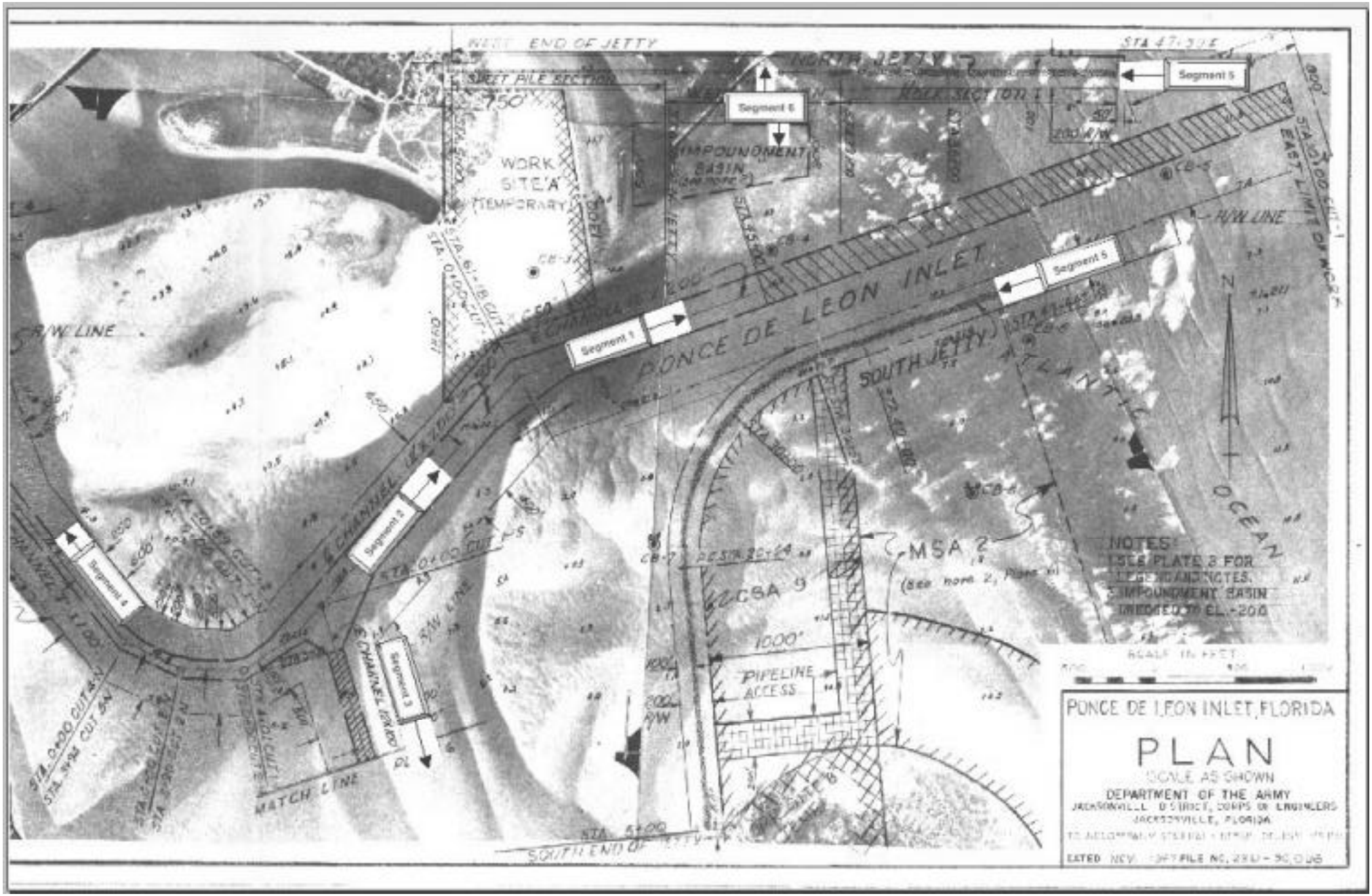
PONCE DE LEON INLET
FLORIDA
U.S. ARMY ENGINEER DISTRICT, JACKSONVILLE
CORPS OF ENGINEERS, JACKSONVILLE, FLORIDA


NORTH JETTY
STEEL PILE SECTION
ROCK SECTION
WORK SITE A (TEMPORARY)
IMPOUNDMENT BASIN
PONCE DE LEON INLET
SOUTH JETTY
ATLANTIC OCEAN
Segment 1
Segment 2
Segment 3
Segment 4
Segment 5
Segment 6
CSA 2
CSA 3
MSA 2
PIPELINE ACCESS
1000'
MATCH LINE
SOUTH END OF JETTY
R/W LINE
NOTES:
1. SEE PLATE 2 FOR LEGEND AND NOTES.
2. IMPOUNDMENT BASIN INCREASED TO EL. +20.0
SCALE IN FEET
PONCE DE LEON INLET, FLORIDA
PLAN
SCALE AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Due to shoreline erosion problems north of and navigation problems within the inlet, the north jetty weir of segment 6 was closed in 1984 eliminating the impoundment basin. After closure of the north jetty weir, the entrance channel, segment 1, slowly migrated toward the north jetty, causing segment 2 to rotate in that northeasterly direction, and providing depths varying from 23 to 27 feet deep as of 1994 within 50 to 100 feet of the north jetty. Since depths equal to or greater than the authorized Federal channel depths currently exist, no maintenance dredging has occurred since 1989. The U.S. Coast Guard shifts channel markers to areas of existing deep water for the entrance and south channel, but refuses to mark the North Channel due to its past history of instability. As of January 1999 no maintenance plans exist to dredge any of the project channels through the year 1999. The next budgeted dredging cycle is in 2000.

A draft feasibility study, currently under review, recommends extending the south jetty 1,000 feet to help stabilize the entrance channel, reduce north jetty maintenance costs and decrease the transfer of sand into the inlet from the south. That report is scheduled for completion in 1999.

1e. Sponsor: Ponce DeLeon Port Authority
County of Volusia
700 Catalina Drive, Suite 126
Daytona Beach, Florida 32114

1f. Point of Contact: Joe Nolin (904) 248-8072

While no channel maintenance dredging contracts exist for 1999, placement of an additional scour apron along the inlet side of the north jetty was finished during July 1998. Project Management proposed funding for an 800-foot landward extension of the north jetty in FY-99 and will continue to plan for it. Also, Construction-Operation representatives have requested an Environmental Assessment for placement of a 1540-foot revetment as an appendage to the 800-foot north jetty extension.

TABLE 1. PROJECT STATUS:

CWIS Number	Reach or Segment (if more than one)	Nominal Depth (feet) [1] (as auth.)	(as maint.)	Nom. Chan. Width (feet) (as auth.)	(as maint)	Max. Sailing Draft [2] (feet)	Project Sponsor (Y/N)
14310	Entrance Channel Segment 1	15	15	200	200	10	Y
	Inner Channel Segment 2	12	12	200	200	10	Y
	Indian River Channel Segment 3	12	12	100	100	10	Y
	Halifax River Channel Segment 4	7	7	100	100	5	Y
	Ocean Jetties Segment 5	N/A	N/A	N/A	N/A	N/A	Y
	North Jetty Weir (Closed) Segment 6	N/A	N/A	N/A	N/A	N/A	Y

Name: Ponce DeLeon Inlet Port Authority		
Address: 700 Catalina Drive, Suite 125		
City: Daytona Beach	State: Florida	ZIP: 32114
Point of Contact: Joe Nolin	Phone #: (904) 248-8075	

NOTES:

1. Does not include 2-foot allowable overdepth

2. For vessels currently using the harbor with no use of tides mean tidal variation is 2.3 feet.

2. Authority

The only authorizing document is as follows:

River and Harbor Act of October 1965 provided for the north and south jetties, a 15-foot deep by 200-foot wide entrance channel transitioning to 12 feet deep by 200 feet wide channel, a branch to the north along the Halifax River of 7 feet deep by 100 feet wide, and a south branch in the Indian River at 12 feet deep by 100 feet wide. A weir in the north jetty with an impoundment basin inside to allow transfer of littoral drift across the inlet by use of a pipeline dredge was also included.

3. Economic Assessment

3a. The Significant Economic Activities which Justified the Project.

The significant economic activities that originally justified the project are commercial fishing, recreational boating, and beach stabilization. Of the total benefits listed in the authorizing document for Ponce DeLeon Inlet (House Document No. 74, 89th Congress, 1st Session, dated February 4, 1965, page 20) commercial fishing represented about 15 percent of the total benefits. Recreational boating accounted for approximately 50 percent and beach stabilization 35 percent of the total benefit categories.

Facilities. Ponce DeLeon Inlet connects with the Intracoastal Waterway (IWW) in two locations and provides access to the ocean from several communities in the Daytona Beach - New Smyrna Beach area. That area is within a 15-mile radius of the inlet.

Daytona Beach is a large resort city with excellent boating facilities and marinas to serve the public. The city has a municipal facility and dock with fuel, ice, water, and electricity available as well as meals and lodging nearby. Other facilities include two boatyards with a marine railway in each one for all types of repair, several marine hoists for repairs, and 225 open and covered berths with the same services as the public dock.

On the Halifax River between the inlet and Daytona Beach, there are three communities with facilities for boaters. Port Orange is about 5.5 miles south of Daytona Beach with a boatyard and marina on the east side of the waterway. It is also the location of a commercial fishing facility. Inlet Harbor is a small fishing port on the northern channel of the Ponce DeLeon Inlet project about 0.5 miles southeast of the IWW. The facilities there include a marina with berthing, electricity, fuel, ice, water, some marine supplies, and a marine railway for repairs on small craft 65 feet or less in length. The third community of Ponce Inlet about one mile below Inlet Harbor has several small-craft facilities with berthing, electricity, fuel, water, ice, marine supplies, and marine railway for hull, engine, and electronic repairs on vessels 60 feet or less in length. Those communities also have facilities that handle existing charter and head boat operations.

To the south of the inlet along the Indian River portion of the existing Federal project is New Smyrna Beach about 2.6 miles from the inlet. Several small-boat facilities and a municipal marina provide services and supplies similar to those north of the inlet. Two commercial fishing facilities operate from New Smyrna Beach with fuel, ice, supplies, and berths for transient craft.

3b. Significant Changes in Economic Activities.

Traffic. Ponce DeLeon Inlet is the only access for recreational and commercial boaters in Volusia County to the ocean. Commercial traffic consists of charter and head boats as well as commercial fishing vessels. From available information obtained in local interviews recreational use of the inlet is apparently heavy and increasing. General commercial use remains steady.

The Volusia County charter industry has been growing over the past 17 years (1981-1998). This is the result of an artificial reef program which has built 12 reefs within a distance of 6-12 miles offshore. Natural reefs are 25-30 miles offshore. The artificial reefs are very attractive to sport fishermen. That attraction is what helps support the charter and head boat fleets in the vicinity of the inlet.

The charter and head boats use the inlet almost daily. On the average charter boats make 2,391 trips a year to carry about 16,380 persons of which 33 percent are residents and 67 percent are tourists. Head boats average about 1,872 trips a year through the inlet with 41,184 persons of whom 64 percent are tourists and 36 percent are residents. About 40 percent of the charter boat trips and 50 percent of the head boat trips are to the artificial reefs.

Estimated recreational boat traffic, from local observations, in the inlet can range from 18,000 to 20,000 trips a year. That traffic comprises both local and transient boats from both inside and outside the county. Just in Volusia County boat registration records show over 17,000 recreational boats in the 1991-1992 license year. With the public parks on both sides of the inlet and the artificial reefs offshore, visitation on weekends is heavy and boaters from outside the local area are numerous.

Available information from the Florida Cooperative Extension Service indicates commercial fishermen in Volusia County for the year ending in 1990 numbered 756. That source also had the number of commercial fishermen in the Port Orange area at about 100. Based on information in Florida Department of Environmental Protection records, offshore commercial fishing trips (resulting in a landing of catch) numbered 5,614 for Volusia County from July-December 1990. The estimate is probably low considering transit and local traffic that enter and leave without landing a catch.

Commerce. The commercial fishing vessels handle the primary cargo through the inlet. From Marine Fisheries records in the Florida Department of Natural Resources landings in Volusia for a past six month period totaled 3,918,918 pounds. The offshore portion of that catch is an estimated 2,044,310 pounds. The catch consisted primarily of shrimp, grouper, snapper, mackerel, shark, swordfish, and tuna. Records from the Waterborne Commerce of the United States, Part I, for commerce through the inlet from 1984-1995 are in table 2.

A recent economic analysis for a navigation study of Ponce DeLeon Inlet included in a draft feasibility report dated September 1998 provided an update on the marginal benefits related to a proposed 1000-foot extension of the south jetty. A review of that analysis indicates approximately 9 percent of the total benefits represent commercial navigation, 46 percent recreational navigation, and 45 percent savings in maintenance.

While the commercial benefits shown represent 9 percent of the total benefits, that percentage only represents those marginal commercial benefits associated with the proposed 1000-foot south jetty extension. When compared to the original benefit categories for commercial and recreational boating, commercial boating decreased from 15 percent of the total benefits to 9 percent. Recreational boating decreased from 50 to 46 percent.

Due to erosion problems north of and stability within the inlet, work to close the north jetty weir occurred between October 1983 and March of 1984. Dredging of the inlet system of channels has not occurred since 1989 due to existing deep water. Correspondingly, no sand transfer north or south of the inlet by channel dredging has occurred from 1989 to the present.

3c. Impacts of Changes.

Since weir closure other changes have taken place that impact maintenance. The entrance channel has migrated up against the north jetty threatening to undermine and possibly outflank it resulting in an increase in maintenance costs for the north jetty. The shoreline of the spit to the west of the north jetty has receded approximately 300 to 1,000 feet while the emerging shoreline north of the south jetty has grown in a northeasterly direction with the natural transfer of sand from south of the inlet around the south jetty.

According to the September 1998 draft report for the navigation study of Ponce DeLeon Inlet, the proposed 1000-foot south jetty extension will reduce the natural transport of sand from the south into the inlet resulting in maintenance efficiencies for the inlet and adjacent Atlantic Intracoastal

Waterway. Modeling of that alternative indicates the potential for a natural relocation of the Federal channel away from the north jetty and back toward the center of the inlet.

Continued maintenance of the inlet is warranted for economic activities of commercial and recreational navigation in approximately the same proportion as originally authorized. The current economic analysis in the September 1998 Navigation Study for Ponce DeLeon Inlet, Florida, Draft Feasibility Study supports that statement. Average annual equivalent (AAEQ) net benefits of $126,000 result with total AAEQ benefits of $564,000 and AAEQ costs of $438,000 for a benefit-to-cost ratio of 1.29. Of the $564,000 AAEQ benefits 9 percent or $48,000 represent commercial navigation, 46 percent or $262,000 consist of recreational navigation, and 45 percent or $254,000 include maintenance savings.[3]

When compared to the original authorization the above new incremental benefits for new work are similar. The original authorization consisted of AAEQ benefits and costs of $365,000 and $291,000 respectively for a net benefit of $74,000 and a benefit-to-cost ratio of 1.25. Of the $365,000 AAEQ benefits 15 percent or $56,000 include commercial fishing, $180,000 or 50 percent consist of recreational boating, and 35 percent or $129,000 include beach stabilization.[4] With the current September 1998 analysis, additional economic analysis is not needed.

Ponce DeLeon Inlet will continue to experience charter boat activity as the artificial reef program the port maintains provides commercial fishing and diving activities. Commercial fish processing facilities in Port Orange and New Smyrna will continue to attract commercial fishermen.

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[3] U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, *Ponce DeLeon Inlet, Florida, Volusia County, Navigation Study*, *Draft Feasibility Report*, September 1998, page 123.

[4] House Document No. 74, 89th Congress, 1st Session, Ponce De Leon Inlet, Florida, February 4, 1965, page 20.

TABLE 2. ECONOMIC DATA:

Reach or Segment	Benefit Indicators[1]	Current Operations[2]	Trend (Up, Down, Steady)	Summary/ Remarks
Project	COMMODITY TYPES	Fish Shellfish Ice	Steady/Cyclic Down N/A	
	TONNAGE (1000's of Pounds)	Fish 1000 Shellfish 1000 Ice NR		Data Taken from Waterborne Commerce of the United States, 1995
	GROWTH RATES	Fish +/- 0% Shellfish +/- 0% Ice +/- 0%	Generally Down - Long Term Cyclical N/A	Computed using data for 1991-1995 from Waterborne Commerce of the United States
	VESSEL TYPES	Charter Boats, Shrimp Boats, Long-line Fishing Boats, Head Boats		
	VESSEL SIZES	See Following		
	RECREATIONAL VESSEL TYPES	yachts; sail and power boats	18,000-20,000 trips/yr.	
	RECREATIONAL VESSEL SIZES	15 feet to 75 feet		
	COMMERCIAL FISHING, CHARTER	20-40 ft.length & 3-5 ft. draft (Charter) 65-85 ft long & 3-5ft draft (Head Boats)	Steady(2,400 trips/yr.) Steady(1,900 trips/yr.)	85-90 Commercial Vessels use the inlet – with 59 considered homeport vessels (avg. 2,400 trips per year)
	COMMERCIAL FISHING, OTHER	60-90 ft long & 8-10 ft draft (Shrimp) 30-50ft long & 3-5 ft draft (Long-line)	Decrease Steady	

NOTES:

1. Pertinent indicators taken from sponsor's correspondence, personal interviews, and U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, *Ponce DeLeon Inlet, Florida, Volusia County, Navigation Study*, *Draft Feasibility Report*, September 1998, pages 94-95, and Appendix D Benefits.

2. Waterborne Commerce of the United States, 1995, Part 1

4. Maintenance Dredging

Maintenance dredging has not occurred in the inlet over the last five years as shown in table 3. The last maintenance dredging effort occurred in 1989 after closure of the north jetty weir in 1984. That effort involved dredging approximately 869,000 cubic yards of material from the entrance channel (segment 1). The material was placed on the beach about 4200 feet north of the inlet along a 6,000-foot area. No dredging has occurred since 1989. The next budgeted dredging cycle is scheduled for 2000.

TABLE 3. DREDGING HISTORY:

Reach or Segment	Primary Dredging Method[1]	Dredging History[2] (000 CY per year)						Disposal Site(s) Used (Identifier)
		1994	1995	1996	1997	1998	Ave.	
Project	Cutterhead Dredge	0	0	0	0	0	7[3]	South Beach

NOTES:

1. During the last dredging event in 1989 a cutterhead dredge was used.

2. No dredging has occurred in the last 5 years. Next dredging is scheduled for 2000.

3. Estimated future average shoaling rate for inlet based on proposed 1000-ft south jetty extension in place (U.S. Army Corps of Engineers, Navigation Study for Ponce DeLeon Inlet, Florida, Draft Feasibility Report dated September 1998, page 122) is 6,800 cubic yards per year. Without the south jetty extension 10,000 to 20,000 cubic yards per year is the estimated shoaling rate. (Taylor Engineering, "Ponce DeLeon Inlet Feasibility Study Engineering Benefits of the Proposed S. Jetty Extension," July 1998, (Draft), page 4).

Initial project placement consisting of general dredging and construction of the north and south jetties was considered completed by July 27, 1972.[5] Federal and non-Federal new work

[5] 1973 Annual Report of the Chief of Engineers on Civil Works Activities, Volume II, Department of the Army/Corps of Engineers, Extract – Report of the Jacksonville, Fla., District, p. 9-14.

construction costs totaled $4,331,200.[6] As of September 1995, a total of $19,976,000 including contributions by the sponsor has been expended on maintenance for the project. Table 4 shows the expenditure of construction and maintenance dredging cost.

TABLE 4. CHANNEL COST HISTORY:

Reach or Segment	Construction/ Acquisition (thousands of dollars)		Dredging Cost [3] (thousands of dollars per year)						
	Year	Cost		1994	1995	1996	1997	1998	Ave
Project	1974	$4,331	Dredging:	0	0	0	0	0	0
	1994	$1,000[1]	Transpor-tation:						
	1998	$1,067[2]	Placement:						
			Env. Studies:						
			Disposal Site O&M:						
			Total:	0	0	0	0	0	0

Notes:

1. To prevent a breakthrough at the Sponsor's request in 1994 215,000 cubic yards of material from maintenance dredging of the adjacent Intracoastal Water (IWW) was placed along the north spit beach west of the north jetty.

2. To prevent undermining of the north jetty by the entrance channel a scour apron was placed along the inlet side of the jetty toward the landward end. The costs shown represent bid award information and do not include contractor profit or claims.

Table 5 identifies anticipated dredging quantities from the project or inlet system of channels for placement on the south beach over the next ten years. The 20,000 cubic yards per year represents the estimated upper limit for the average shoaling rate since closure of the north jetty weir (1984-present).

6 1974 Annual Report of the Chief of Engineers on Civil Works Activities, Volume II, Department of the Army/Corps of Engineers, Extract – Report of the Jacksonville, Fla., District, p. 9-14 & 9-31.

TABLE 5. ANTICIPATED DREDGING:

Reach or Segment	Programmed Dredging[1] (000 CY) (consistent with 10-year O&M maintenance plan)											Disposal Site(s) to be Used
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Ave.	
Project					100					100	20	S. Beach

NOTE:

1. Current estimated shoaling rate is 10,000 to 20,000 cy/yr (Taylor Engineering report, "Ponce DeLeon Inlet Feasibility Study Engineering Benefits of the Proposed South Jetty Extension",July 1998 (Draft) page 4.). Used maximum of 20,000 cy/yr for disposal area planning. If the proposed new work 1000-foot south jetty extension of the 1998 Draft Feasibility Study is approved, the shoaling rate is estimated to be reduced to 6,800 cy\yr.

The 100,000 cubic yards in 2003 could be deferred until 2008 depending on the location of the shoals. The 2008 quantity would then change to 200,000 cubic yards. Table 6 contains channel maintenance cost projections.

TABLE 6. CHANNEL MAINTENANCE COST PROJECTIONS:

Reach or Segment	Programmed Dredging Cost (millions of dollars per year, consistent with 10-year project O&M maintenance schedule)											
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Ave[1]
Project	Dredging	BREAKDOWN IS NOT AVAILABLE DUE TO VARIABILITY IN CONSTITUIENT COST COMPONENTS (TRANSPORTATION, PLACEMENT, ETC.) FROM CYCLE TO CYCLE BUT ASSESSED TOTAL IS CONSIDERED REASONABLE										
	Transpor-tation:											
	Placem't:											
	Env. Studies:											
	Disp.Site O&M:											
	Total:					1.0					1.0	0.20

NOTE: The inlet management plan recommends placement of dredged material on the south beach. Cost represent beach placement for all reaches.

5. Dredged Material Disposal Site Capacity and Usage

5a. Sites Used for Disposal

Sites used for disposal of dredged material during past dredging events when the north jetty weir was open (1971-1978) include the beaches north and south of the jetties, and open water offshore of both those beaches. Since closure of the north jetty weir in 1984, dredging occurred only three times (1984, 1985, & 1989). During those three events material was placed on the beaches or open water offshore of the beaches. Currently the south beach area has an estimated capacity of 1,000,000 cubic yards of material. Assuming a shoaling rate of 20,000 cubic yards per year for the inlet system of channels, the south beach renourishment area has adequate capacity for more than 20 years.

Florida Statute 161.142 mandates placement of beach-quality sand on the beach. The beach areas used in the past for disposal are located just north and south of the jetty. The north beach area extends approximately 1.5 miles north of the jetties and the south beach area starts about one mile south of the jetties and extends about one mile south of that point between control monuments R-158 and R-161.

Table 7 identifies the existing north and south beach areas as future sites for beach nourishment. According to the most recent water quality certificate application (Florida Department of Environmental Protection File (FDEP) No. 0129417-001 JC), the south beach or primary area will receive material from the entrance and south or Indian River channels. The north beach or secondary site is the least cost alternative for material from the north or Halifax River channel.

5b. Anticipated Changes

No disposal site changes are anticipated in the future. The Inlet Management Plan developed by Taylor Engineering for the Ponce DeLeon Inlet Port Authority recommends placement of dredged material from the inlet on the beach south of the jetties. The designated area is between DNR monuments R-158 and R-161. The current water quality certificate application (FDEP No. 0129417-

001 JC) also requests the south beach as the primary disposal site with the north beach as a secondary location.

5c. Ongoing Studies

The current Draft Feasibility Study for Ponce DeLeon Inlet does not recommend construction of any new disposal areas. It concurs with the recommendation of Inlet Management Plan dated March 1994 developed by Taylor Engineering. Page 137 of that report projects dredging and feeder beach construction once every 10 years along the south beach between DNR monuments R-158 and R-161.

During a November 1998 meeting with the Sponsor, the Florida Department of Environmental Protection, and Division of State Lands, the Ponce DeLeon Inlet Port Authority (the Sponsor) agreed to consider sponsorship of an 1135 Study. An 1135 study examines project modifications for improvement of the environment and aquatic ecosystem restoration. It is not anticipated that the 1135 study will involve modification of any existing beach disposal areas.

TABLE 7. DISPOSAL SITE DATA:

Disposal Site(s)	Site Type	Disposal Site Capacity		Beneficial Uses (CY/Year)		Other Users	Disposal Site Sponsor
		Original (000)	Percent Filled	Existing	Anti-cipated		
N. Beach	On Shore	N/A	N/A			None	P.D. Port Authority
S. Beach[1]	On Shore	N/A	N/A			None	P.D. Port Authority

Sponsor(s) for Disposal Site(s)		
Name: Ponce DeLeon Port Authority County of Volusia		
Address: 700 Catalina Drive, Suite 125		
City: Daytona Beach	State: Florida	ZIP: 32114
Point of Contact: Joe Nolin	Phone # (904) 248-8072	

NOTE:

1. According to FDEP Application File No. 0129417-001 JC the current estimated capacity of the south feeder beach (the primary site) is 1,000,000 cubic yards.

TABLE 8. PLACEMENT HISTORY:

Disposal Site(s) (Identifier)	Primary Disposal Method	Placement History[1] (000 CY)					
		1994	1995	1996	1997	1998	Ave.
Beach	Hydraulic Pipeline	0	0	0	0	0	20

NOTE:
1. Current estimated shoaling rate is 10,000 to 20,000 cy/yr based on Taylor Engineering report, "Ponce DeLeon Inlet Feasibility Study Engineering Benefits of the Proposed South Jetty Extension",July 1998 (Draft) page 4. If the proposed new work 1000-foot south jetty extension of the 1998 Draft Feasibility Study is approved, the shoaling rate is estimated to be reduced to 6,800 cy\yr.

The last maintenance dredging effort occurred in 1989 after closure of the north jetty weir in 1984. That effort involved dredging approximately 869,000 cubic yards of material from the entrance channel (segment 1). No dredging has occurred since 1989. As table 8 indicates that trend continued through 1998 or the past nine years and is expected to include 1999.

6. Environmental Compliance

The current NEPA document shown in Table 9 covering the existing and future dredging and disposal activities for Ponce DeLeon Inlet is a Water Quality Certification Application (WQC) to the Florida Department of Environmental Protection (FDEP) filed under FDEP No. 0129417-001. All FDEP requests for additional information were answered in January 1999. A Notice of Intent (NOI) to issue that WQC is scheduled for February 1999.

Three other NEPA documents currently in development evaluate navigation structures, which may help reduce future shoaling and inlet dredging. One is an Environmental Assessment (EA) for the proposed construction of a 1000-foot south jetty extension. That EA is included as part of the September 1998 Draft Feasibility Navigation Study for Ponce DeLeon Inlet, Florida. A separate WQC for an 800-foot landward extension of the north jetty and an EA for a 1540-foot revetment is being prepared.

Dredged material disposal requirements for Ponce DeLeon Inlet for Florida Statute 161.142 and National Economic Development policy guide the next 20 years. Florida Statue 161.142 mandates that all beach quality sands are placed on a beach. National Economic Development policy dictates that the disposal alternative selected must comply with the National Economic Development objective to provide the most economical project consistent with environmental regulations and guidelines.

There are no immediate or anticipated future impediments to maintaining compliance with applicable environmental laws and regulations for dredging and dredged material disposal. As table 9 shows the current Water Quality Certificate for Ponce DeLeon Inlet is expected to be updated by February 1999.

TABLE 9. PROJECT COMPLIANCE:

Reach or Segment	Document	Preparation Date	Expiration Date	Scheduled Update
Project	WQC Application (FDEP File # 0129417-001 JC)[1]	Final Submission 4 Jan 1999	N/A	February 1999 (FDEP NOI)
South Jetty Extension	Draft Feasibility Report & EA	September 1998	N/A	Final Report to be submitted Jan 1999
800' Landward Extension of North Jetty	WQC Application	Application Completed December 1998	N/A	March 1999 (FDEP NOI)
1540' Revetment attached to 800' N. Jetty Ext.	Environmental Assessment (EA)	March 1999	N/A	N/A

NOTE:

1. NEPA Document - Water Quality Certification (WQC) application with Florida Department of Environmental Protection request for additional information (RIA) completed 4 Jan 1999 to dredge existing project and place material on the north (secondary) and south (primary) beaches. Florida Department of Environmental Protection – notice of intent (NOI) to issue WQC for maintenance dredging scheduled for February 1999.

7. Conclusions

The currently available capacity of the existing beach disposal areas for dredged material from Ponce DeLeon Inlet poses no significant issue. Beach disposal is the mandated preferred alternative, where possible. Historically both the north and south beaches have received beach quality material from the inlet. The south beach is currently recommended by the Inlet Management Plan and listed in the most recent water quality certification application as the primary location for future placement of dredged material from the inlet. The current estimated capacity of the south feeder beach is 1,000,000 cubic yards. Assuming an estimated shoaling rate of 20,000 cubic yards per year for the inlet system of channels the south beach provides an adequate capacity for more than 20 years as summarized in table 10.

Current constraints on the dredging operation or disposal operations consist of the standard manatee and sea turtle precautions to minimize the possibility of impacts to those species such as the use of observers and "no-wake" speeds by vessels associated with dredging activities. Arrangements to locate and move sea turtle eggs if dredging or beach placement occurs during the nesting season is required.

Beneficial uses of dredge material for Ponce DeLeon Inlet will be explored in the future under a proposed 1135 study.

TABLE 10. MAINTENANCE SUMMARY STATUS:

The ability to maintain this project for the next 20 years is limited by:	
Disposal Site Capacity	NO
Economic Viability	NO
Environmental Compliance	NO

Table 11 summarizes the benefit and cost indicators for continued maintenance. Justification of continued maintenance is appropriate based on those indicators and the 1.3 benefit-to-cost ratio of the September 1998 Draft Feasibility Study for Ponce DeLeon Inlet.

TABLE 11. ECONOMIC ASSESSMENT WORKSHEET FOR CONTINUED MAINTENANCE DREDGING:

	ECONOMIC STATISTICS	AUTHORIZING STUDY	RECENT STUDY (SEPT 1998)	CURRENT CONDITIONS	ASSESS-MENT	SUMMARY
BENEFIT INDICATORS	COMMODITY TYPES	Commercial Fishing (15%) Recreational Boating (50%) Beach Stabilization (35%)	Commercial Fishing (9%) Recreational Boating(46%) Maintenance Savings(45%)	Commr'l Fishing 9% Recre'l Boating 46% Maint Savings 45%	-6% -4% +10%	+
	ESTIMATES in lbs.	784,000	2,000,000	2,000,000	+	
	GROWTH RATES	N/A	2.9% annually	2.9% annually	+	
	TRADE ROUTES	Atlantic off Fla. E. Coast	Atlantic off Fla. E. Coast	Atlantic off Fla. E. Coast	0	
	VESSEL TYPES	Commercial & Recreational	Commercial & Recreational	Commerc'l & Recret'l	0	
	VESSEL SIZES	20–40 ft.	20–90 ft.	20–90 ft.	+	
	VESSEL OPERATIONS	Draft of 3'-5'	Draft of 3'-10'	Draft of 3'-10'	+	
COST INDICATORS	DREDGING CYCLE	1 Year[1]	10 Year[2]	10 Year[2]	-	-
	DREDGING QUANTITIES/CYCLE	153,000cy/yr[3]	20,000cy/yr	20,000cy/ yr	-	
	AVG. ANN. MAINT. COST	$178,000[4]	$152,000[5]	$152,000[5]	-	
	PRICE LEVEL	FEB 1963	May 1997	May 1997		
CONCLUSION	JUSTIFICATION OF CONTINUED MAINTENANCE DREDGING IS APPROPRIATE BASED ON ECONOMIC ANALYSIS IN SEPTEMBER 1998 DRAFT FEASIBILITY STUDY, NO ADDITIONAL ECONOMIC ANALYSIS IS REQUIRED.					

Notes:

1. U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, *Ponce DeLeon Inlet, Florida, Volusia County, Navigation Study*, *Draft Feasibility Report*, September 1998, page 102. Dredging occurred each year from 1971-1978 when the north jetty weir was open. That condition represents the original authorized plan.
2. U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, *Ponce DeLeon Inlet, Florida, Volusia County, Navigation Study*, *Draft Feasibility Report*, September 1998, pages 108-109.
3. House Document No. 74, 89th Congress, 1st Session, Ponce De Leon Inlet, Florida, February 4, 1965, page 18. The 167,000 cubic yards shown in table 2 of the original authorization is adjusted or reduced by 14,000 cubic yards to a revised total of 153,000 cubic yards to remove the initial channel (4,000 cy) and sediment basin (10,000 cy) dredging quantities which were included in the total of 167,000 cubic yards.
4. House Document No. 74, 89th Congress, 1st Session, Ponce De Leon Inlet, Florida, February 4, 1965, page 21.
5. U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, *Ponce DeLeon Inlet, Florida, Volusia County, Navigation Study*, *Draft Feasibility Report*, September 1998, page 111.

8. Recommendations

Continued maintenance of this project is warranted on the basis of project usage and indicators of economic productivity, sufficient disposal capacity available, and maintenance activities in compliance with applicable environmental laws and regulations for the next 20 years. Therefore, no additional dredged material management plan is necessary beyond this assessment.

Joe R. Miller
Colonel, U.S. Army
District Engineer